

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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For: SELF-VENTILATING DISC BRAKE ROTOR

WITH OUTBOARD VENT PORTS

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3-11-04

by applicant's attorney, Carl L. Johnson.

Carl L. Johnson

Carl L. Johnson

3-11-04

Date

Honorable Commissioner for Patents

Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Dear Sir:

STATEMENT IN SUPPORT

Continuation in Part of

US Patent Application No. 09/888,942

Particular attention is drawn to the distinguishing features of the applicant's Claim 1 over the prior art of US 6,152,270 (Georgetti). Thus Claim 1 inter alia holds:

... said pillars arranged in repeating clusters of six with each cluster in cross section including radially aligned inner and outer pillars with pairs of radially aligned intermediate pillars positioned symmetrically one pair on each side of a radially aligned central axis defined by said radially aligned inner and outer pillars; each pair of said pairs of radially aligned intermediate pillars defining a channel between the pillars comprising said pair; said channel offset from a radially aligned direction.

It is submitted that Georgetti does not teach the above specific characteristics of the pillar pattern. In Georgetti the columns 7, 8 and 9 of pillars in figures 3 can be viewed as repeating clusters of three pillars (two pillars in a first column and one pillar in a second column) or clusters of five pillars if either column is allowed to form part of two adjoining overlapping clusters. Thus Georgetti does not teach a pattern of “repeating clusters of six”. Neither can a pattern of repeating clusters of six pillars be found in figure 5 of Georgetti such that “pairs of radially aligned intermediate pillars [are] positioned symmetrically one pair on each side of a radially aligned central axis...” as in the applicant's claim 1.

Figure 5 of Georgetti shows a pattern of four columns 7, 8, 8, and 9 where each column 7 now includes an elongate structure 32. Although column 7 may be taken as defining a central axis, there are no “pairs of ... intermediate pillars positioned symmetrically ... on each side ...” of that axis so as to form a channel between each pair. Similarly no such pairs of pillars forming channels between them can be found in Georgetti if column 9 in figure 5 is taken as defining a central axis.

Reference is further made to the prior art of GB 2 144 186 (Edwards et al). None of the patterns of disc supporting structures shown in figure 1 of that specification teach a symmetrical pattern on each side of a radially aligned center line. Some of the patterns, and in particular pattern 12 disclosed in figure 6 of Edwards are symmetrical with respect to the rotation of the disc rotor. However, pattern 12 is comprised of repeating columns of three radially aligned pillars with the pillars of alternate columns oppositely oriented and it is submitted that it is not possible to identify a radially aligned center line such as defines “pairs of radially aligned intermediate pillars positioned symmetrically one pair on each side of a radially aligned central axis...”.

US 2,603,316 (Pierce) also does not teach the configuration of the pattern of pillars as set out in claim 1 of the applicant's specification. The “annular plates 4 and 6” of Pierce are spaced apart by vanes 10 extending substantially from the inner periphery to the outer periphery of the annular plates.

Similarly, US 2,411,067 (Tack) teaches a plurality of “blades 10” extending substantially from the inner to the outer peripheries of plates 2 and 4 (Figure 1).

US 4,745,996 (Wirth) in figure 2 of the specification teaches a pattern of circular pillars “stud bolts 7 ... arranged absolutely uniformly across the entire surface of the brake ring ...” (column 3 line 2). Again there are no discernable repeating clusters of pillars each cluster arranged to define a central axis with pairs of intermediate pillars defining a channel.

US 4,928,798 (Watson) also does not disclose the pattern of pillars of claim 1. The “annular members 1 and 3” are held in spaced apart configuration by repeating clusters of three elongate “vanes 7” and six pillars 9 in “two circumferential rows”. Although each cluster can be said to infer a central axis defined by the central vane and the two aligned pillars, there are no equivalent pairs of symmetric intermediate pillars on either side forming channels between them.

US 5,542,503 (Dunn) teaches repeating "posts ... in groups of four ... 46a, 46b, 46c and 46 d" (column 5 line 2). By allowing each pair of posts 46a and 46c (or alternately each pair 46b and 46d) to form part of two adjoining groups of six, it could be said that in figures 5 and 6 "posts" 46b and 46d (or alternately, 46a and 46c) define a radially aligned central axis. However the flanking posts on either side of such a central axis are not intermediate pairs, nor do they form channels between them which are "offset from a radially aligned direction" as per the applicant's claim 1.

Reference is also made to the prior art of DE 42 10 449 (Buderus). The cross sectional view of figure 2 of this specification teaches a repeating pattern of clusters of pillars where each cluster is centered on web structures 8. Each cluster then comprises nine pillars (7,9, 9 and 10) with two further pillars between each cluster. It is again submitted therefore that this patent also does not teach the pattern and channel forming function of the applicant's claim 1.

Further attention is drawn to EP 0 318 687 (also by Buderus). This patent discloses a variety of internal structures separating the two brake discs 4 and 4' (figures 3 and 4). Only in figure 3 are two patterns shown which could be described as repeating clusters. The first of these shows apparently repeating clusters of eleven pillars and the second clusters of eight diamond shaped pillars.

Respectfully submitted,

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